

Notice of Allowability

Application No.

10/634,746

Examiner

FRITZ ALPHONSE

Applicant(s)

PARK ET AL.

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 5/22/2007.
2. ☒ The allowed claim(s) is/are 1-42.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Jacques Louis Jacques
JACQUES LOUIS JACQUES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sung-jin Park on 5/22/2008.

The application has been amended as follows:

Abstract:

line 3: Please delete "Disclosed is" and insert ---This invention relates to---.

Figure:

Please insert --- Prior Art--- in figures: 1, 2, 3, 4A, 4B, 5A, 5B, 6, 7.

REASONS FOR ALLOWANCE

2. After further search and thorough examination of the present application claims 1-42 are found to be in condition for allowance over the prior art of record.

The following is an Examiner's statement of reasons for allowance: The present invention relates to an apparatus and method for performing turbo decoding.

Claim 1 is allowable because none of the cited references either singular or in combination teaches "each of the second shift registers receives second NW symbols via its second input terminal, shifts and stores the received symbols in the opposite direction of the predetermined direction, and at the same time, serially outputs the stored first NW symbols via

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its first output terminal, thereafter, each of the second shift registers receives third NW symbols via the first input terminal, shifts and stores the received symbols in the predetermined direction, and at the same time, serially outputs the stored second NW symbols via its first output terminal.”

Claims 6 and 15 are allowable because none of the cited references either singular or in combination discloses “a third metric calculation section for receiving delta metrics from the first metric calculation section corresponding to the bidirectional shift registers, and calculating beta metrics; a fourth metric calculation section for receiving the alpha metric, also receiving a multiplexing result of the beta metrics, and calculating Log Likelihood Ratio (LLR) values corresponding to the respective shift registers; and a Soft-In Soft-Out (SISO) decoder including a subtraction section for subtracting an output of the unidirectional shift register from the respective LLR values, and outputting the subtraction result for interleaving/deinterleaving.”

Claim 23 is allowable because none of the cited references either singular or in combination discloses “shifting and storing the received symbols in a predetermined direction, thereafter, each of the second shift registers receiving second NW symbols via its second input terminal; and shifting and storing the received symbols in the opposite direction of the predetermined direction, and simultaneously, serially outputting the stored first NW symbols via its first output terminal, thereafter, each of the second shift registers receiving third NW symbols via the first input terminal, shifting and storing the received symbols in the predetermined

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direction, and simultaneously, serially outputting the stored second NW symbols via its first output terminal .”

Claim 26 is allowable because none of the cited references either singular or in combination discloses “dividing input data into groups the input data each comprised of bits of a second length which is $1/2$ of the first length, at a memory buffer including one or more bidirectional shift registers having a first terminal and a second terminal for data input/output, the bidirectional shift register forming bit streams of the second length by sequentially receiving and shifting bits of odd-numbered groups among the divided groups via the first terminal and then sequentially outputting the formed bit streams via the first terminal; and forming bit streams of the second length by sequentially receiving and shifting bits of even-numbered groups among the divided groups via the second terminal and then sequentially outputting the formed bit streams via the second terminal.”

Claim 35 is allowable because none of the cited references either singular or in combination discloses “dividing input data bits into groups each comprised of bits of a predetermined length, via one or more first stage's bidirectional shift registers having a first terminal and a second terminal for data input/output, the first stage's bidirectional shift registers forming bit streams of the length by sequentially receiving and shifting bits of odd- numbered groups among the divided groups via the first terminal and then sequentially outputting the formed bit streams via the first terminal; and forming bit streams of the length by sequentially

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receiving and shifting bits of even-numbered groups among the divided groups via the second terminal and then sequentially outputting the formed bit streams via the second terminal.”

These limitations, in conjunction with all other limitations of the base claims were not shown by, would not have been obvious over, would have been fairly suggested by the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (703) 872-9306 for all formal communications.

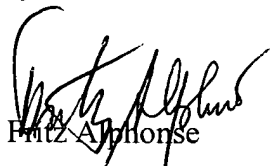
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on M-F, 8:30-6:00, Alt. Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques, can be reached at (571) 272-6962.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3824

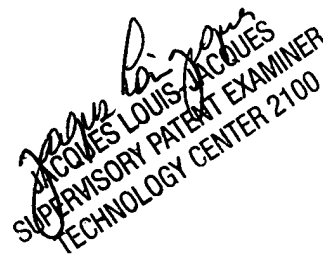
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Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Fritz A. Phorse

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5/22/2008


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